Postdoctoral research position
for Advance Optical Microscopy Bioimage Data Analysis

The Barcelona Institute of Science and Technology (BIST) is a scientific foundation of seven research centres of excellence in Catalonia. One of the main goals of BIST is to promote a multidisciplinary research agenda to increase the scope and impact on society of the produced science.

A world-class Advanced Optical Microscopy (AOM) hub exists within BIST, spearheaded by facilities and research groups at CRG, IBEC, ICFO and IRB Barcelona, doing research and development at the forefront of this field. To complete the picture, IFAE hosts one of the most powerful computing centers for scientific data processing in Spain: PIC (Port d'Informació Científica).

Purpose

The AOM strategic program at BIST seeks applications to fill a postdoctoral research position focused on the development and optimization of image analysis techniques for supporting experiments using super-resolution and 3D high-throughput live imaging data.

Single experiments are expected to reach the 10 to 100 TB scale. In order to effectively handle this unprecedented volume of microscopy data the team will have access to distributed data processing and high performance computing facilities within BIST (PIC).

The final goal is to extract quantitative data from the images, by developing a common framework that facilitates the effective analysis of these large datasets in a distributed environment.

The successful candidate will work in a multi-institutional team environment, closely collaborating with scientific data processing and computing researchers at IFAE/PIC as well as with the teams at the microscopy groups/facilities at CRG, IBEC, ICFO and IRB Barcelona.

Main duties

- Develop a framework to run bioimage pipelines for analyzing multi-terabyte microscopy data samples.
- Develop novel computational tools to enable distributed research teams to share and analyze bioimage data - e.g. multiple environment image analysis software, distributed computing and machine/ deep learning.
- Develop advanced techniques for pattern recognition in noisy data and for the identification and extraction of weak signals - e.g. single molecule localization, particle tracking, 3D object segmentation.

Qualifications

- PhD in bioinformatics, computer science, mathematics or physics
- Experience with Bioimage (i.e. Optical Microscopy) image analysis packages (usage, deployment and plugin development).
- Strong programming skills in Python, Java and/or c++.
- Experience with Matlab.
- Experience working in Linux computing environments.
- Experience in advanced optical microscopy experimentation will be a plus.
- Experience in machine learning, GPU programming, distributed data processing systems or high performance computing will be a plus.
- Able to work independently as well as within a multidisciplinary team
- Fluent in English. Good communication skills.

Conditions and application

The PROBIST postdoctoral fellowships are granted for 3 years including:

- An annual gross salary of 36.000€ plus a single payment of 1.500€ relocation support (Spanish tax and social security deductions apply),
- Close mentoring and supervision through prestigious senior researchers,
- A personalized career development plan,
- A training programme for scientific and transferable skills.

For further information and to fill in the application form, please visit **https://bist.eu/probist/**